

CLAIMS

1. A method of monitoring for the presence of liquid at a site comprising: locating at said site a sensor assembly comprising radiation input means connected to a radiation source and radiation output means connected to a radiation detector and/or analyser arranged to detect and/or analyse radiation which results from the emission of radiation by the source; causing the radiation input means to irradiate a sensing location; and employing said detector/analyser to receive radiation via said radiation output means, the arrangement being such that the nature and/or amount of radiation received by the detector/analyser is affected by the presence of liquid at the sensing location.

2. A method according to Claim 1 for monitoring for the presence of hydrophobic liquid wherein the sensor assembly includes a hydrophobic element adapted to take up hydrophobic liquid from the site, and the hydrophobic element provides said sensing location.

3. A method according to Claim 2 wherein the hydrophobic element is a fluorocarbon membrane.

4. A method according to Claim 2 or 3 wherein the hydrophobic element comprises polyvinylidene fluoride.

5. A method according to any preceding Claim wherein the

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radiation source and input means are operated to direct radiation towards said sensing location and the detector/analyser and output means are used to receive radiation reflected from the sensing location.

6. A method according to any of Claims 1 to 4 wherein the radiation source and input means are operated to direct radiation towards said sensing location and the detector/analyser and output means are used to receive radiation scattered at said sensing location.

7. A method according to any of Claims 1 to 4 wherein the radiation source and input means are operated to direct radiation towards said sensing location and the detector/analyser and output means are used to receive radiation transmitted through said sensing location.

8. A method according to any of Claims 1 to 4 wherein the radiation source and input means are operated to direct radiation towards said sensing location and the detector/analyser and output means are used to receive radiation emitted from said sensing location.

9. A method according to any preceding Claim including a step of examining the spectroscopic characteristics of the radiation received by the detector/analyser to provide data relating to the chemical nature of liquid at the sensing

location.

10. A method according to any preceding claim wherein the radiation source and detector/analyser are remote from the site and are connected to the input and output means, respectively, via waveguide means.

11. A method according to any preceding claim wherein there are a plurality of sensor assemblies which are located at different sites, and the method includes switching the connection of the radiation source and/or the detector/analyser between different sensor assemblies.

12. Sensor assembly for use in monitoring for the presence of hydrophobic liquid at a site, said assembly comprising: a hydrophobic element which is disposed so that in use it is exposed to the environment at a sensing location and which is adapted to take up hydrophobic liquid; a radiation source arranged to irradiate at least a portion of the hydrophobic element; and a radiation detector and/or analyser arranged to receive radiation resulting from the interaction of the source's radiation with the hydrophobic element.

13. A sensor assembly according to Claim 12 which includes a housing containing, or coupled to, said radiation source and said radiation detector and/or analyser; said housing

having window means confronting said hydrophobic element; and said radiation source and detector/analyser being disposed or coupled so that radiation from the source can pass outwardly through the window means, and undergo reflection and/or other interaction at the hydrophobic element, interacted radiation passing inwardly through the window means to reach the detector/analyser.

14. An assembly according to Claim 10 or 11 wherein the detector/analyser comprises means for spectroscopic analysis.

15. An assembly comprising a vessel containing a liquid and a sensor assembly located at a site potentially contaminated by liquid leaking from the vessel and adapted to carry out the method of any of Claims 1 to 11 to detect leakage of the liquid.

16. An assembly according to Claim 12, 13, 14 or 15 adapted to carry out remote monitoring by means of a telecommunication link arranged to transfer data from the sensor assembly to a remote destination.

17. An assembly according to claim 12, 13, 14, 15 or 16 wherein the radiation source and detector/analyser are adapted to be remote from the sensing location, being coupled to waveguide means for conveying radiation to and from the sensing location.

18. An assembly for carrying out the method of claim 11 and comprising a detector/analyser and/or a radiation source connected to a switching unit which is connected to a plurality of sensor assemblies and is operable to switch the connection of the radiation source and/or the detector/analyser between different sensor assemblies.

18. An assembly for carrying out the method of claim 11 and comprising a detector/analyser and/or a radiation source connected to a switching unit which is connected to a plurality of sensor assemblies and is operable to switch the connection of the radiation source and/or the detector/analyser between different sensor assemblies.